



NETWORKS FAQ

Q I don't get very good WiFi transmission rates in my house and want to improve the signal strength. I've seen antennas and amplifiers available. What's the difference, and can I use them together?

A To get a better signal, you need to increase the power of your wireless router. Power is generally measured in dB, called dBi for antennas. Antennas don't require external power and boost the wireless signal by their dBi rating. So a 7dBi antenna boosts your wireless signal by 7dB.

An amplifier is a powered device to boost your router's signal. It is usually adjustable, so you can choose the power output and prevent your network transmitting too far. An amplifier also boosts your wireless signal by its dB rating.

While you can technically use both devices together, UK law states a maximum total output – the router's power plus the antenna or amplifier – of 20dB. For example, Buffalo's High Power router (right) has a power output of 18.3dB and a 1.5dBi antenna, making a total of 19.8dB.

The power information can be difficult to find, but in general it's illegal to use an external antenna with an amplifier. For your home, it's easier and cheaper to use a Hi-Gain antenna such as Hawking's Omni-Directional 7dBi Antenna, reviewed last month.

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HOTLIST WIRELESS ROUTER

US ROBOTICS Wireless MaxG Router

RATING ★★★★★

PRICE £77 inc VAT

SUPPLIER www.misco.co.uk

DETAILS www.usr.com

US Robotics's Wireless MaxG router extends the range and throughput of your wireless router, and remains within the 802.11g specification. With a MaxG PC card we got a maximum throughput of 26.21Mbit/s. Testing with a Centrino notebook was also impressive. It's easy to configure, and a great choice for anyone with poor wireless reception at home.



SPECIFICATIONS 802.11g (125Mbit/s turbo mode), four network ports, one WAN port. **Part code** USR5461

REVIEW WIRELESS ROUTER

BUFFALO AirStation G54 High Power

RATING ★★★★★

PRICE £67 inc VAT

SUPPLIER <http://uk.insight.com>

DETAILS www.buffalo.co.uk



There are many clever techniques for increasing wireless network range and performance, but brute force can work, too. Last month we reviewed Buffalo's High Power PC Card network adaptor, which improved performance and range for our notebook. This month we've looked at the High Power router. Featuring a more powerful transmitter (see our FAQ, left), it can increase the range and speed of your entire wireless network, which helps every device and not just those with matching adaptors.

We tested the router using a Centrino notebook, recording speeds of 16.78Mbit/s at close range, 18.64Mbit/s at 10m and 2.44Mbit/s at 20m through three walls. This was marginally better than US Robotics's MaxG router, which we reviewed in last month's *What's New*.

Using Buffalo's High Power PC Card in the notebook produced a huge performance increase, with 28.93Mbit/s at close range and 10m, and 7.23Mbit/s at 20m. These are the fastest scores we've recorded for a wireless network.

Speed isn't the only thing that Buffalo has got right; configuration is also easy thanks to a new web interface. A quick-start wizard takes you



through all the important settings and checks that you're online automatically. The router configures the SSID network name to its MAC address automatically, so it's unique out of the box. Security is turned off by default, and it doesn't prompt you to turn it on through the wizard. Both WEP and WPA-PSK are easy to configure, but it's a shame it's not forced. The firewall and UPnP are both turned on by default.

The web interface shows only the important information on the front page. To alter other settings, which only experts should do, you have to click the Advanced button.

All in all, this is one of the least confusing interfaces we've seen.

The router comes with Buffalo's AirStation OneTouch Secure System (AOSS) technology, which will automatically transmit wireless settings. You need the Buffalo client on your computer for it to work, but it's compatible with all Buffalo's adaptors and Centrino notebooks.

The High Power router narrowly edges out US Robotics's MaxG router by being a touch faster and a little bit cheaper.

David Ludlow

✓ Improves whole network performance; excellent throughput

✗ Setup wizard doesn't prompt you to turn on security

SPECIFICATIONS 802.11g wireless router (125Mbit/s turbo mode), four-port Ethernet switch, AOSS. **Part code** WHR-HP-G54

REVIEW WIRELESS ROUTER

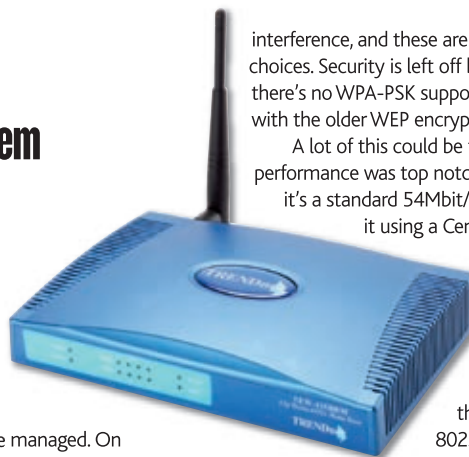
TRENDNET 54Mbps ADSL Modem Router

RATING ★★

PRICE £64 inc VAT

SUPPLIER www.tlc-direct.co.uk

DETAILS www.trendnet.com



interference, and these are the only sensible choices. Security is left off by default and there's no WPA-PSK support, so you're stuck with the older WEP encryption.

A lot of this could be forgiven if performance was top notch, but it wasn't. As it's a standard 54Mbit/s router, we tested it using a Centrino notebook.

At close range the router struggled and we managed only 5.5Mbit/s, which is way off the pace of other 802.11g devices.

Moving 10m away yielded better results and a speed of 10.89Mbit/s. We couldn't get a signal further away than this, though.

The 54Mbps ADSL Modem Router is not particularly expensive but it's not particularly good, either. The poor default settings, lack of WPA-PSK support and slow performance are all disappointing. There are much better products for the money.

David Ludlow

✓ Small; built-in ADSL modem

✗ Slow; difficult to configure; no WPA support

SPECIFICATIONS 802.11g (54Mbit/s) wireless router, ADSL modem, four-port Ethernet switch. **Part code** TEW-435BRM



REVIEW NETWORK STORAGE

NETGEAR SC101

RATING ★★★★★

PRICE £75 inc VAT

SUPPLIER www.microdirect.co.ukDETAILS www.netgear.co.uk

Netgear's SC101 lets you store your files centrally on a network. It comes empty, so you can install your own choice of Parallel ATA hard disks. This might sound complex, but the drives simply slot into the dual slots and don't need any screws.

The SC101 isn't a standard network storage device; it's actually a storage area network (SAN) device. The main difference is that a SAN product needs a special driver, which is supposed to improve performance. Netgear's software installs the driver and helps you configure your storage space via its wizard. From the available disk space, you can create new logical drives. These appear in Windows as normal drives, and can either be shared for other users or kept private. Creating a drive is similar to partitioning a new hard disk.

When you create a drive, you can choose to mirror its contents. Normally these systems require you to have two disks of the same size, but the SC101 requires only that the free space on the other disk is the same size or greater than the size of your new drive. In short, you get the protection without the normal restrictions. You also get a copy of SmartSync Pro backup software, which intelligently synchronises only those files that have changed, saving on network bandwidth.

We installed our SC101 with a single Hitachi DeskStar 160GB hard disk. Our large file test wrote files at 5.63MB/s and read files at 6.9MB/s; small files were written at 0.4MB/s and read at 1.42MB/s. This is in line with other network devices we've seen that don't use a dedicated driver.

Netgear's SC101 is not the easiest of products to get to grips with, but its integration with Windows, private drives and free backup software make it a flexible and intelligent choice for sharing and backing up files over a network.

David Ludlow



✓ No need for identical hard disks; integrates with Windows; can create private drives

✗ No faster than normal network storage; configuration wizard could be confusing

SPECIFICATIONS Network storage, takes two PATA hard disks, 10/100Mbit/s network connection, SmartSync Pro software. **Part code** SC101

REVIEW SERIAL CONSOLE

MIDDLE DIGITAL PC Weasel PCI VGA

RATING ★★★★★

PRICE £200 inc VAT

DETAILS www.realweasel.com

PC Weasel is a PCI card aimed at people who want to run remote servers using inexpensive PCs. You usually gain control of such systems using remote access software such as Secure Shell (SSH), but if the PC crashes or you accidentally lock yourself out after trying new firewall rules, you'll need to visit the computer and plug in a keyboard and monitor. This could be a disaster if the server is hosted in a data centre or an office miles from home.

PC Weasel solves this problem by providing control of the system over a serial link. This could be connected to another server at the remote location using a null modem cable or to a modem. Log into Weasel and you'll be able to reboot the PC and even access the BIOS should you need to change boot discs or reinstall from the CD. PC Weasel can also be used as a diagnostic card, reporting on BIOS post codes.

To get the most out of the device, it should be installed in a PC that runs an operating system in command-line mode. After logging in, you will be able to issue commands and view the output as if you were working from a local terminal.

It is possible to do a hard reboot of Microsoft Windows and other operating systems that load a graphical user interface, but you won't be able to take control of the operating system until you use your choice of remote-control software to return to command-line mode. PC Weasel disables the graphics card in the PC, so local users won't be able to use it with a keyboard and monitor. Expensive, purpose-built servers have similar serial console features built into their motherboards, although we're not aware of any that feature the ability to interrupt the power as PC Weasel does.

This is not a cheap device, but if you want to use an inexpensive PC as an important and reliable remote server, you will find that PC Weasel is worth every penny.

Simon Edwards



✓ Brings server remote control features to desktop PCs

✗ Very specialised

SPECIFICATIONS VGA/keyboard to RS-232 serial connection, 16,550 UART, PS/2 keyboard cable

REVIEW SECURITY CAMERA

MICROFORM WebCam Zoomvu

RATING ★★★

PRICE £81 inc VAT

SUPPLIER www.cctvmobile.comDETAILS www.cctvmobile.com

The Zoomvu is a little different to other webcams we've seen, as it lets you monitor images from your mobile phone. Installation is a little tricky, though, and the manual is littered with spelling mistakes. It's also hard to register the software, as there are no clear instructions on how to format the required email.

Once working, WebCam Zoomvu's preview has a fixed resolution that's jerky to watch. Fortunately, it records at a smooth 30fps at a resolution of 352x288. The software helps you to monitor a specific area of the camera's view, such as a window, by simply using the mouse to draw a box around the area of interest. Any movement triggers a recording; you can also email alerts and set off a warning sound. The camera is good and has six LEDs and a light-sensor, so when it gets dark it can turn on its lights and keep shooting.

Although you can view the camera's images using a mobile phone, we found it was a nightmare to get it working. You can connect directly to your PC provided you know its Internet Protocol (IP) address and reconfigure your router. However, as most internet connections don't have fixed addresses, there's a Bridging server available, which you connect through instead.

This was difficult to get working, though, and our PC often reported that it was impossible to connect. There's no indicator to show that it's online and working, either. When we finally got it to work, though, it was impressive and the image quality was sharp. Frame rates will depend on your phone's internet connection, but over GPRS ours was about one frame every three seconds, which is enough to see what's going on.

It's a shame there's no internet viewer for a PC. The webcam is fine and the main monitoring software works well enough, but the mobile monitoring needs to be more reliable and easier to configure.

David Ludlow



✓ Good webcam; light sensor; easy to configure monitoring areas

✗ Difficult to configure; poor documentation; no internet viewing software

SPECIFICATIONS USB webcam, 30fps 352x288 video capture (15fps, 640x480), security monitoring software, mobile phone viewer. **Part code** Zoomvu